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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,661	06/08/2000	Richard Louis Arndt	AUS990938US1	9881
35525	7590	06/27/2005	EXAMINER	
IBM CORP (YA) C/O YEE & ASSOCIATES PC P.O. BOX 802333 DALLAS, TX 75380			TANG, KENNETH	
			ART UNIT	PAPER NUMBER
			2195	

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/589,661

Applicant(s)

ARNDT, RICHARD LOUIS

Examiner

Kenneth Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 28 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 25-27, and 29-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/28/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This final action is in response to the Amendment filed on 4/1/05.
2. Claims 1-10 and 25-30 are presented for examination. Claims 11-24 were cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-3, 5-10, 25-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable by Zalewski et al. (hereinafter Zalewski) (US 2002/0016892 A1) in view of Bugnion et al. (hereinafter Bugnion) (US 6,075,938).**

4. As to claim 1, Zalewski teaches a logically partitioned data processing system, comprising:

- a plurality of logical partitions (*see Abstract*);
- a plurality of operating systems, each assigned to a separate one of the plurality of logical partitions (*see Abstract*);
- a plurality of assignable resources, wherein each of the plurality of assignable resources is assigned to one of the plurality of logical partitions ([0008]);

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Zalewski teaches a hypervisor assigning shared resources which are logically (virtually) assigned to partitions ([0007]-[0008] and [0018]) but fails to explicitly teach that the hypervisor emulates shared resources and provides a virtual copy of the shared resources to each of the plurality of logical partitions. However, Bugnion teaches emulating shared resources and providing a virtual copy of the shared resources to the partitions (*col. 7, lines 6-12 and lines 43-46*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of emulating shared resources and providing a virtual copy of the shared resources to the partitions in order to share major data structures so that memory overhead can be reduced (*see Abstract and col. 7, lines 38-48*).

5. As to claim 2, Zalewski teaches the logically partitioned data processing system as recited in claim 1, wherein the shared resources comprise an operator panel ([0037]).

6. As to claim 3, Zalewski teaches the logically partitioned data processing system as recited in claim 1, wherein the shared resources comprise a system console ([0037]).

7. As to claim 5, Zalewski teaches the logically partitioned data processing system as recited in claim 1, wherein instructions for executing the hypervisor are contained within firmware ([0007] and [0059]).

8. As to claims 6-10, Zalewski teaches the logically partitioned data processing system having firmware that comprises of memory. By definition, firmware is a combination of

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software and hardware. ROMs, PROMs and EPROMs that have data or programs recorded on them are firmware. Zalewski fails to state that the firmware comprises of a read-only memory, a programmable read-only memory, an erasable programmable read-only memory, an electrically erasable programmable read-only memory, and a non-volatile random access memory.

However, it is well known to one of ordinary skill in the art that firmware comprises of ROMs, PROMs, EPROMs, and EEPROMs, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature to the existing system of Zalewski and Bugnion in order to improve the control and flexibility of data storage for the system.

9. As to claim 25, it is rejected for the same reasons as stated in the rejection of claim 1. In addition, Zalewski teaches assigning non-overlapping subsets of resources to one of a plurality of partitions (*[0005], [0143], and [0257]*).

10. As to claim 26, Bugnion teaches wherein the step of emulating further comprises providing an interface to the hardware resource as an emulated port device driver (*col. 11, lines 32-42*).

11. As to claim 27, it is rejected for the same reasons as stated in the rejection of claim 1.

12. As to claim 29, it is rejected for the same reasons as stated in the rejection of claim 5.

13. As to claim 30, it is rejected for the same reasons as stated in the rejection of claims 5 and 26.

Allowable Subject Matter

14. Claims 4 and 28 are allowed.

Response to Arguments

15. During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

16. *Applicant's argues on pages 5-6 of the Remarks that there is no suggestion or motivation in either Zalewski or Bugnion or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings, nor would a reasonable expectation of success exist.*

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Zalewski teaches a hypervisor assigning shared resources which are logically (virtually) assigned to partitions ([0007]-[0008] and [0018]). Bugnion teaches emulating shared resources and providing a virtual copy of the shared resources to the partitions (*col. 7, lines 6-12 and lines 43-46*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of emulating shared resources and providing a virtual copy of the shared resources to the partitions in order to share major data structures so that memory overhead can be reduced (*see Abstract and col. 7, lines 38-48*). The benefit of sharing major data structures so that memory overhead can be reduced provides the reasonable expectation of success. Zalewski and Bugnion are both in the same field of endeavor of a partitioned system using operating system instances within a virtual machine architecture.

17. *Applicant argues on page 7 of the Remarks that Zalewski actually teaches away from virtualizing or emulating an allocable resource to multiple partitions.*

In response, the Examiner respectfully disagrees. Zalewski teaches various amounts of embodiments and well known teachings. Teaching away means that the references disclose that it cannot virtualize the system resources. The fact that a different embodiment teaches something different does not constitute as teaching away. The Examiner has shown that Zalewski teaches a hypervisor within a virtual machine system, wherein the virtual machine system supports the concept of a logical partition or LPAR. Each LPAR are logically assigned to the partition (*page 1, [0007]-[0008]*).

18. Applicant argues on pages 7-8 that Bugnion explicitly states that all system resources are virtualized, while Zalewski describes a system in which none of the system resources are virtualized, and therefore, combining the two references would teach away from each other and change the principle operation.

In response, the Examiner respectfully disagrees. Zalewski teaches various amounts of embodiments and well known teachings. Teaching away means that the references disclose that it cannot virtualize the system resources. The fact that a different embodiment teaches something different does not constitute as teaching away. The Examiner has shown that Zalewski teaches a hypervisor within a virtual machine system, wherein the virtual machine system supports the concept of a logical partition or LPAR. Each LPAR are logically assigned to the partition (*page 1, [0007]-[0008]*). Zalewski teaches a hypervisor assigning shared resources which are logically (virtually) assigned to partitions (*[0007]-[0008] and [0018]*). Bugnion teaches emulating shared resources and providing a virtual copy of the shared resources to the partitions (*col. 7, lines 6-12 and lines 43-46*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of emulating shared resources and providing a virtual copy of the shared resources to the partitions in order to share major data structures so that memory overhead can be reduced (*see Abstract and col. 7, lines 38-48*). The benefit of sharing major data structures so that memory overhead can be reduced provides the reasonable expectation of success. Zalewski and Bugnion are both in the same field of endeavor of a partitioned system using operating system instances within a virtual machine architecture.

19. Applicant argues on page 8 of the Remarks that there is no motivation to combine Zalewski and Bugnion.

In response, the Examiner respectfully disagrees. Zalewski teaches a hypervisor assigning shared resources which are logically (virtually) assigned to partitions (*[0007]-[0008] and [0018]*). Bugnion teaches emulating shared resources and providing a virtual copy of the shared resources to the partitions (*col. 7, lines 6-12 and lines 43-46*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of emulating shared resources and providing a virtual copy of the shared resources to the partitions in order to share major data structures so that memory overhead can be reduced (*see Abstract and col. 7, lines 38-48*). The benefit of sharing major data structures so that memory overhead can be reduced provides the motivation and reasonable expectation of success. Zalewski and Bugnion are both in the same field of endeavor of a partitioned system using operating system instances within a virtual machine architecture.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
6/18/05


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